



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,629	06/27/2003	Jae-Hyun Ryou	15436.440.12	8741
22913	7590	10/24/2005	EXAMINER NGUYEN, TUAN N	
WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			ART UNIT 2828	PAPER NUMBER

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/607,629	RYOU ET AL.	(PNU)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 24 August 2005.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

***RESPONSE TO AMENDMENT***

1. In respond to applicant's amendment filed 08/24/2005, claims 1, 4, 8, 9, 14-19, and 24 have been amended.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5-6, 8, 14, 19-20 are rejected under 35 U.S.C. 102(b) as being unpatentable over Jewell (US 5719891).

With respect to claims 1, 3, 6, 8, 14, 19-20 Jewell '891 shows and discloses a VCSEL comprising a means or first mirror (Fig 5c: 82), and active means area (Fig 5c: 86), a confinement means or dielectric gain on active area having a cavity or opening (Fig 5c: 26, 28, 32), and a second reflecting means or mirror on said confinement means or dielectric gain guide (Fig 5c: 82, 84, 86, 26, 28, 32, 112)(Fig 5F) (Col 7: 15-50)(Col 8:40-45), where the dielectric gain is deposited on the active are according to a pattern to form an aperture in the dielectric gain guide (Col 6: 28-30)(Fig 5c: 26, 28, 32), and the second reflector formed using epitaxial growth process (Col 6: 60-64)(Col 8: 34-45). Since claim 8 recites the same or identical elements/limitations it is inherent to use patents '891 to recite the method of making a gain VCSEL guide, product by process.

With respect to claims 2, 5 Jewell '891 discloses the substrate comprises of InP or GaAs (Col 7: 1-5)(Col 9: 51-55).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or non-obviousness.

5. Claims 4, 7, 9-13, 15-18, 21, 22-24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jewell (US 5719891).

With respect to claims 4, 7, 9, 17-18, 24 the claims further require "dielectric gain guide comprises material from a group of SiO<sub>2</sub>, TiO<sub>2</sub>, and SiN". Jewell '891 did not directly disclose that the dielectric gain guide materials, however Jewell did indirectly disclose the use of SiO<sub>2</sub> in the dielectric mirrors (Col 9: 40-41, 44-45) (Col 7:1-15, 35-60) and the like (Col 11: 65-67) (Col 12: 1-10). It is within the general skill of a worker in the art at the time the invention was made to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, in this case the use of SiO<sub>2</sub> or TiO<sub>2</sub>, and SiN for its reflective/refractive index or selecting desire wavelength. *In re Leshin*, 125 USPQ 416.

With respect to claims 10-13, 15, 16, 21-23 Jewell '891 discloses the brag reflectors (Fig 5c: 84, 112) having substrate made of InP or GaAs based structure (Col 7: 1-15) (Col 9: 51-55), the claim further requires that the first mirror including one or more materials is near lattice matching with the substrate or the active means (Col 6: 50-67). It is within the general skill of a worker in the art at the time the invention was made to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, in this case the materials in first mirror has lattice match with the substrate or active means, to provide uniform wavelength emission or change of wavelength (Col 9: 55-67)(Col 10: 20-30). *In re Leshin, 125 USPQ 416.*

#### **Response to Argument**

6. Applicant's arguments filed on 08/24/2005 have been fully considered but they are not persuasive.

The examiner read the claims given their broadest reasonable interpretation consistent with the specification. However, it is not proper to read limitations appearing in the specification into the claim when these limitations are not recited in the claim. In this case Jewell (US 5719891) did disclose the "dielectric gain guide or oxidized layers deposited on the active area" even though there is nonoxidize layers exist or that the top mirror may additionally comprise dielectric materials (Col 6: 28-30)(Col 7: 15-50)(Col 8:40-45).

Jewell '891 did disclose where the dielectric gain is deposited on the active are according to a pattern to form an aperture in the dielectric gain guide (Col 6: 28-30)(Fig 5c: 26, 28, 32). Figure (5c: 112, 28, 84, 86, 32) shows the second mirror in on the dielectric gain guide which has an aperture formed therein, and situated between active are and the second mirror.

***Conclusion***

7. The prior art made of record and relied upon is considered pertinent to applicant's discloses.

Jewell (US 5719891) Fig 1-8, Jewell (US 6014395) Fig 1-10, Jewell (US 5985683) / (US 5724374) – Fig 7-10 show and disclose a VCSEL comprising first and second mirrors, active region, with dielectric gain guide having a aperture.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

Art Unit: 2828

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (703) 308-16741. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen



MINSUN OH HARVEY  
PRIMARY EXAMINER